Evaluation of Montrose Settlements Restoration Program 2013 Fishing Outreach Mini-Grant Program

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MSRP Fishing Outreach

Public Information to Restore Lost Fishing Services

The Montrose Settlement Restoration Program (MSRP)[1] allocated $1 million in its 2005 Final Restoration Plan (RP) and Environmental Impact Statement/Environmental Impact Report for education outreach products and programs, building upon the work of U.S. EPA's Fish Contamination Education Collaborative (FCEC), a federal, state and local partnership which addresses public exposure to contaminated fish in the Southern California coastal region. FCEC focuses on public education about the human health hazards associated with DDT and PCB contamination in fish and provides information to enable the public to reduce their exposure to these contaminants in local fish. MSRP Trustees augmented the existing effort of the FCEC program by providing information to anglers to allow them to make sound decisions about where and which species to fish, and helping anglers consume locally caught fish in a manner that minimized their health risk and exposure to DDTs and PCBs. MSRP worked to develop outreach materials to establish the linkage between the ecology and life history of a particular species of fish and its tendency to bioaccumulate contaminants, and fish species which are free of consumption advisories and locations where these fish can be found. These actions most directly and effectively address the loss of human fishing associated with the Montrose case. The implementation of this public information campaign is still ongoing and has incorporated the updated fish consumption advisories released to the public in June 2009.

MSRP Education Outreach Products and Activities

What's the Catch? Comic Book

An initial version of this comic book was developed in 2005 and was later updated and translated into Spanish and Mandarin. Ten thousand copies of the comic book are distributed annually through local education centers, outreach programs, aquaria, and events. New fishing advisory information was incorporated in the latest addition of the comic book printed in 2012.

Southern California Fish Identification Card

An initial version of the fish identification card was developed in 2005 and was later revised to include additional fish images, key sportfishing regulations, and general information updates. Ten thousand copies of the fish identification card are distributed annually through local education centers, outreach programs, aquaria, and events.

Fishing Outreach Mini-Grants

In 2013 MSRP issued a fifth Request for Proposals for education outreach programs which focused on teaching young people safe fishing practices. This report evaluates three mini-grant programs implemented during 2013 (SEA Lab, City of Los Angeles, and Marina del Rey Anglers). The education and outreach programs utilize the MSRP comic book and fish identification card, with interactive components

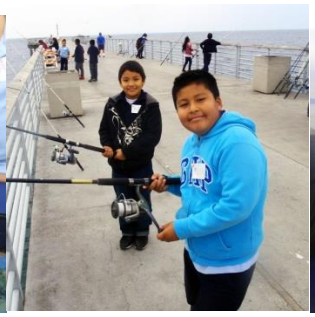
[1] The MSRP is a joint federal and state program made up of the following natural resource trustee agencies (or Trustees): National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, and National Park Service, the California Department of Fish and Wildlife, the California State Lands Commission, and the California Department of Parks and Recreation.

to their programs. Program activities included pier fishing, youth and community workshops, fish identification, safe fish preparation for consumption, safe fishing practices, and DDT/PCB contamination issues in Table 1 below.

Table 1—Key Program Elements of MSRP Education Outreach Programs

Program Element	SEA Lab	Marina del Rey Anglers	City of LA Cabrillo Pier
Pier Fishing	X		X
Boat Fishing		X	
Education Sessions	X	X	X
Fish Identification	X	X	X
Safe Fish Preparation	X	X	X
Safe Fishing Practices	X	X	X
DDT, PCB Contamination Concepts	X	X	X
Food Chain Concepts	X	X	X
Participants			
Total # Students	657	494	303

Fun Fishing Program at SEA Lab


The SEA Lab is a program of the Los Angeles Conservation Corps and is a coastal education facility in Redondo Beach, encompassing an aquarium and a native plant nursery. Since 1997, the SEA Lab has provided marine and habitat conservation projects while the aquarium has provided educational activities for thousands of school children and local South Bay beach community residents and visitors. It also provides job training, employment and internship opportunities for 18- to 24-year-old at-risk young adults (known as corpsmembers) who act as informal educators.

The fifth year of the Fun Fishing Program started in September 2013 and ended in December 2013. During this time period, 657 elementary school students participated in a three-hour Fun Fishing session at the SEA Lab and at Hermosa Beach Pier. Each participant spent 90 minutes at the SEA Lab where they learned about the history of contamination and the impact of DDTs and PCBs on the environment. Students also received a guided tour of the facility and learned how to identify fish that may pose a health risk. Students then headed to the Hermosa Beach Pier for a 90 minute fishing excursion where they learned basic fishing techniques and proper fish handling. The students also learned how to correctly

measure fish and comply with California Department of Fish and Wildlife regulations, to interpret fish consumption advisories, and how to properly fillet and cook fish to minimize their exposure to contaminants. There were twelve participating schools in the targeted communities.

Prior to the field trip, MSRP sent copies of the "What's the Catch?" comic books to teachers in preparation for the student's field trip. SEA Lab also sent a form to the teachers with field trip details that included information about using the comic book as a tool before their field trip, proper attire, pre-activities, and pre/post teacher and student surveys.

For this program year, online post-program surveys were provided to teachers and students immediately after the end of SEA Lab's Fun Fishing Program. Another post-program survey was sent to teachers and students six months later. The short-term surveys measured what students learned during the program and the long-term surveys were used to evaluate any behavior change in how the students applied what they learned. For teachers the short-term surveys focused on how the information they gained could be used in the classroom including incorporating the MSRP comic book and fish identification card. The long-term survey for teachers was a follow-up to see if they had actually incorporated concepts and tools into their curriculum. We decided to only send the long-term post-program survey to the teachers and students that responded to the short-term post-program survey since they were more likely to respond. Twelve teachers out of 25 responded to the short-term post-program survey for a 48% response rate and 10 of these 12 teachers responded to the long-term post –program survey for an 83% response rate. For the student survey 347 out of 657 students responded to the short-term post-program survey for a response rate of 53% and a much lower number of students responded to the long-term post-program survey which was 52 out of 347 for a 15% response rate. Selected survey results are included in this report below.

Teacher and Student Attitudes and Knowledge about Science

All results shown in Table 2 are for the short-term post-program teacher surveys. Most teachers responded within the Strongly Agree and Agree categories for all survey questions. Teachers strongly agree (67%) or agree (25%) on having a high level of interest in science. The teachers were not as confident with their level of science content knowledge with only 25% selecting strongly agree and 67% selecting agree or their understanding of scientific research with 33% for strongly agree and 58% for agree. Less than half of the teachers strongly agreed with feeling comfortable in teaching science (42%) while half did agree (50%). Half of the teachers strongly agree that they use hands-on science regularly and most of the teachers agree (92%) that they are confident in their ability to teach science. Half of the teachers strongly agree that their students are very interested in science while more than half the teachers feel that students are interested in environmental issues, feel a high level of civic responsibility, and have high science content knowledge. Half the teachers reported that students do not have frequent science field experiences (or they weren't sure), which is an indication that the SEA Lab trip is unique for these students. Most teachers agreed that students perform very well in science. Results are shown in Table 2.

Table 2—Teacher and Student Attitudes and Knowledge of Science

Teachers' Attitudes and Knowledge about Science	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
High level of interest in science	67%	25%	8%	0%	0%
High level of science content knowledge	25%	67%	8%	0%	0%
High understanding of scientific research	33%	58%	0%	0%	8%
Teachers' Comfort in Teaching Science	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
Feel comfortable teaching science	42%	50%	0%	8%	0%
Use hands-on science regularly	50%	42%	0%	8%	0%
Confident in my ability to teach science	0%	92%	0%	8%	0%
Students' Attitudes and Knowledge about Science	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
Very interested in science	50%	50%	0%	0%	0%
Very interested in environmental issues	25%	67%	8%	0%	0%
Feel high level of civic responsibility	8%	67%	25%	0%	0%
Have high science content knowledge	0%	75%	17%	8%	0%
Have frequent science field experiences	0%	50%	8%	33%	8%
Perform very well in science	0%	75%	17%	8%	0%

Number of teacher survey respondents is 12 (48%) post visit from September 2013 to December 2013.

Usefulness of Comic Book and Fish ID Card

Teachers strongly agree that the comic book was useful in preparing their students for their upcoming SEA Lab visit (67%). The comic book served as a resource that teachers could easily include in the classroom (58%), was in a useful format for presenting information (58%), captured their students' interest (58%), as well as reinforces content learned during their visit (73%). The survey results for the fish identification card were similar to the responses for the comic book. These results show that the comic book and fish identification cards are a valuable resource to the teachers and the program. Results are shown in Table 3.

Table 3—Usefulness of Comic Book and Fish ID Card (short-term survey results)

How Useful is the Comic Book	Strongly Agree	Agree
Presented useful information for my students	58%	42%
Captures my students' interest	58%	42%
Useful format for presenting information	58%	42%
Resource I can use easily in the classroom	58%	42%
Useful for preparing students for their visit	67%	33%
Reinforces content learned during their visit	73%	27%
How Useful is the Fish ID Card	**Strongly Agree**	**Agree**
Presented useful information for my students	67%	33%
Captures my students' interest	58%	42%
Useful format for presenting information	58%	42%
Resource I can use easily in the classroom	50%	42%
Useful for preparing students for their visit	58%	42%
Reinforces content learned during their visit	58%	42%

Number of teacher survey respondents is 12 (48%) post visit from September 2013 to December 2013.

For the long-term survey we asked teachers if they still use the fish ID card and comic book. Half of the teachers replied rarely (50%) but 20% replied occasionally (1x/month) and 30% said never. We asked the teachers how they used the comic book or fish ID card in their classroom and several teachers mentioned that the kids brought the comic book home to read with their families while another teacher used it to reinforce the importance of keeping our planet clean from pollution.

Classroom Discussion of Ocean Stewardship and Fishing Issues

The number of teachers who discussed ocean stewardship or fishing issues with their students at least once a month or more frequently also was assessed. Table 4 shows that the majority of teachers rarely or never discuss most of these topics in the classroom. The topics relating to the importance of taking care of the ocean and marine life and science career opportunities were discussed by some teachers on a more regular basis. These survey data show that the majority of topics covered by the SEA Lab program were new for the students and the program seems to be introducing topics that are not normally covered in the classroom.

Overwhelmingly, teachers planned to utilize content learned from their visit in the classroom as part of a larger science lesson (83%); incorporate science, marine biology, environmental or conservation issues (83%); or follow up with additional curricula or science lessons (83%). These results are also shown in Table 4.

Table 4—How Often do Teachers Discuss Ocean Stewardship and Fishing? (short-term survey results)

Frequency that Teachers Discuss the Following Topics	Somewhat (1x/week)	Occasionally (1x/month)	Rarely	Never
General information about fishing	0%	25%	50%	25%
General information about marine life	25%	17%	50%	8%
Importance of taking care of ocean and marine life	33%	33%	33%	0%
Opportunities for students to pursue career in science	33%	42%	17%	8%
How DDT/PCB in ocean harms wildlife and people	0%	25%	42%	33%
How to identify fish and which fish are safe to eat	0%	17%	58%	25%
Some commonly caught fish in S. CA are not safe to eat	0%	25%	33%	42%
Ways to safely prepare and eat fish	0%	17%	33%	50%
Bioaccumulation	17%	17%	25%	42%
How fishing is part of many cultures around the world	18%	45%	18%	18%
Plan to Utilize Visit into my Teaching	Yes	Maybe	No	_
As part of a larger science lesson in my classroom	83%	17%	0%	-
Incorporate science, marine biology, environmental or conservation issues into my regular curriculum	83%	17%	0%	-
Follow up with additional curricula or science lessons	83%	17%	0%	-

Number of teacher survey respondents is 12 (48%) post visit from September 2013 to December 2013.

For the long-term post surveys we asked how frequently teachers used concepts that they learned from the SEA Lab program in their classrooms over the past six months. More than half of the teachers used these concepts in their classroom occasionally or once each month and a few used them more frequently such as once per week. The rest of the teachers rarely taught these topics in the classroom. All data for this survey question is shown in Table 5.

Table 5—How Often do you Teach About Topics Learned from the SEA Lab Fun Fishing Program in the Classroom? (long-term survey results)

Frequency that these topics are taught in the classroom	Frequently (2-3x/week)	Somewhat (1x/week)	Occasionally (1x/month	Rarely
Many fish are safe to eat in the Los Angeles area	0%	20%	50%	30%
A few fish in the Los Angeles area are not safe to eat because they have chemical contaminants in them	0%	11%	56%	33%
Grilling fish is a safe way to eat them	0%	11%	22%	67%
Contaminants bioaccumulate up the food chain	11%	11%	67%	11%
Chemical contaminants such as DDTs and PCBs are still in the ocean near Los Angeles today	0%	22%	56%	22%
Fishing is a fun outdoor activity that connects you to nature	0%	20%	60%	20%
Students play an important role as good ocean stewards	0%	40%	60%	0%

Number of teacher survey respondents is 10 (83%) long-term post visit in March 2014.

We also wanted to know how teachers incorporated what students learned from their visit to SEA Lab into their classrooms. Most teachers (80%) responded yes to using the content as part of a larger science lesson in the classroom. A similar number of teachers (78%) used the trip as a way to incorporate science, marine biology, environmental or conservation issues. Almost all teachers (89%) followed up the visit with additional curricula or science lessons.

Table 6—How Have you Incorporated What Students Learned from their Visit in the Classroom? (long-term survey results)

Frequency that these topics are taught in the classroom	Yes	Maybe	No
Utilized this visit as part of a larger science lesson in the classroom	80%	20%	0%
Utilized this visit as a way to incorporate science, marine biology, environmental or conservation issues into your regular curriculum	78%	22%	0%
Followed up this visit with additional curricula or science lessons	89%	11%	0%

Number of teacher survey respondents is 10 (83%) long-term post visit in March 2014.

Teacher Feedback on SEA Lab Activities

All of the teachers surveyed responded strongly agree or agree that the aquarium staff presentations, hands-on activities, and touch tank/animal interaction activities presented useful information, were interesting, pertinent to California Science Content Standards, and stimulated student interest in science careers. Results are shown in Table 7.

Table 7—Teacher Feedback on SEA Lab Activities
(short-term survey results)

	Responded Strongly Agree and Agree		
Feedback on SEA Lab Activities	Aquarium Staff Presentations	Hands-on Activities	Touch Tank Activities
Presented useful information	100%	100%	100%
Interesting	100%	100%	100%
Pertinent to CA Science Content Standards	100%	100%	100%
Stimulated student interest in science careers	100%	92%	100%

Number of teacher survey respondents is 12 (48%) post visit from September 2013 to December 2013.

Student Feedback on SEA Lab Activities

Student survey feedback included 347 students for a 53% response rate. Half of the students were girls and half were boys. Almost all of the students (97%) indicated that they enjoyed the fishing trip and activities that they did that day. Students responded very positively on all indicators to SEA Lab activities and felt a strong sense of environmental stewardship, with 97% responding that the ocean and marine life are important and that they need to take care of them. They also took away the main messages of the MSRP program such as safe fishing consumption practices (97%), knowing that some fish are not safe to eat (89%), and knowing that chemicals can harm wildlife and people (90%). Results are shown in Table 8.

Table 8—Student Feedback on SEA Lab Activities
(short-term survey results)

	Yes	Maybe	No
I enjoyed the fishing trip and activities we did today	97%	3%	0%
I learned how to identify fish and which fish are safe to eat	94%	5%	1%
I learned that a few types of fish in S. CA are not safe to eat	89%	8%	3%
I learned how chemicals can harm wildlife and people from the comic book	90%	8%	2%
I learned how chemicals bioaccumulate up the food chain	79%	19%	1%
If you eat fish, do you plan to eat fish which are safe to eat?	97%	1%	2%
I learned to look for signs on piers telling me which fish are not safe to eat	94%	4%	1%
I learned to return fish gently to the ocean if I don't plan on eating them	86%	10%	4%
The ocean and marine life are important and we need to take care of them	97%	2%	1%

Number of student survey respondents is 347 (53%) post visit from September 2013 to December 2013.

For the long-term student surveys we asked which key messages students remembered from their visit. More than half of the students remembered 7 out of 10 key messages. Only three messages were a little unclear to students six months after their visit. All responses are shown in Table 9.

Table 9—Which Key Messages do you Remember from Your Visit?
(long-term survey results)

	Yes	Maybe	No
Most fish are safe to eat in the Los Angeles area	44%	37%	19%
A few fish are not safe to eat because of contaminants	92%	4%	4%
Contaminants bioaccumulate up the food chain	50%	46%	4%
Contaminants are still in the ocean today	74%	18%	8%
Eating the fillet is the safest way to eat fish	28%	37%	35%
Grilling is the safest way to prepare fish to eat	58%	26%	16%
Look for signs telling me which fish are not safe to eat	90%	8%	2%
Fishing is a fun outdoor activity	71%	16%	12%
Fish are part of the ocean ecosystem and should be handled carefully when fishing	75%	23%	2%
We play an important role in preserving the ocean	63%	33%	4%

Number of student survey respondents is 52 (15%) long-term post visit in March 2014.

For the long-term survey we also wanted to see if students' behavior had changed as a result of the SEA Lab Fun Fishing Program. We asked students what actions they were currently taking after learning about fish contamination and safe fishing practices during their SEA Lab visit. More than half of the students were taking five of the seven actions that related to key messages they learned during the Fun Fishing program. All results are shown in Table 10.

Table 10—Do you Take Any of the Following Actions?
(long-term survey results)

	Yes	Maybe	No
Do you only eat fish which are safe to eat?	69%	21%	10%
Do you only eat the fillet?	24%	25%	51%
Do you only eat fish which are grilled?	42%	19%	39%
Do you look for signs on the pier telling you which fish are not safe to eat?	82%	10%	8%
Do you tell others about which fish are not safe to eat?	60%	29%	11%
Do you go fishing with family/friends/groups?	65%	14%	21%
Do you return fish that you don't eat gently back to the ocean?	73%	12%	16%

Number of student survey respondents is 52 (15%) long-term post visit in March 2014.

Teacher and Student Benefits from SEA Lab Visit

Teacher feedback on the Fun Fishing Program described multiple benefits of participation for themselves and their students. Students got to participate in many hands-on activities and view marine life not available at their schools. Teachers learned a great deal of new information that they could use with their students in the classroom and were pleased to see their students so engaged and excited about marine life. Teachers felt that their students' participation in the Fun Fishing Program was beneficial. For many of their students, it was their first visit to the ocean or fishing. They were also able to better learn about contamination, safe fishing and consumption practices, and environmental stewardship and conservation.

How did teachers benefit from visiting the Sea Lab (selected teacher responses from short-term and long-term surveys)?

- I did not know the specific facts about the widespread toxins or about some of the fish we were able to observe.
- It gave students the opportunity to revisit 4th grade standards with hands-on interaction. The visit also allowed me to make connections to 5th grade standards about the water cycle and environment.
- This was a good connection to their life science unit, and I can go back to examples from visit to discuss food chains, food webs, and bioaccumulation.
- Students had the opportunity to review the concept of the food web.
- The kids learned so much about the effects of pollution on fish and the safety precautions for eating fish.
- The visit to SEA Lab went well with our introduction to our environmental studies unit.
- It was a great opportunity to have my students go and learn about different fish and how to eat fish safely.
- I actually learned a lot about the specific ways in which the DDT and heavy metal contamination affects the environment of Santa Monica and San Pedro Bays.
- The SEA Lab visit was an excellent experience for the students to do hands-on activities relating to what we learned about on environments and ecosystems in the classroom.

How did students benefit from their visit to the SEA Lab (selected teacher responses from short-term and long-term surveys)?

- The students received such a heightened awareness in marine life, fishing, and the environment from this trip. Hopefully this will inspire them to be life-long learners, scientists, and environmentalists.
- Our students rarely get to visit the beach, so it was nice for them to see marine life and enjoy the fishing experience.
- Many of the students had their first experience with marine animal life on this trip.
- They learned about safe fishing which is especially beneficial for those students who go fishing with their families. They can pass on what they learned to their families.
- Students are still talking about how fun it was to fish and have the opportunity to touch some of the fishes.
- Students learned about measuring fish and about the chemicals that humans put into the environment that affect wildlife and their own food consumption.
- Students recalled in their comic book how fish live in different habitats. We also played the games they learned at SEA Lab to reinforce material from their science unit relating to food chains.
- The students continue to talk about this field trip. They have remembered so much information that they learned from this program.

How would you improve future visits to SEA Lab (selected teacher responses from short-term surveys)?

- Engage students in more activities on how to take care of the ocean and marine life.
- Students would like to observe feeding of some of the fish.
- More time at the touch tank.
- We would like to spend more time inside the aquarium and discussing the different homes for each type of animal.
- The day went smoothly and we learned new things while having a wonderful time. With the budget, or lack thereof, in our school district, field trips are pretty much a thing of the past. We were especially grateful for the bus you provided so we could come visit you.

Summary Evaluation of SEA Lab Fun Fishing Program

Overall teachers did express that the topics introduced by SEA Lab aligned well with California Science Content Standards and what students were learning in their classrooms. The visit to SEA Lab did provide the students with a science field experience which was not readily available to at least half of the students who participated.

The long-term surveys showed that some teachers were still incorporating topics that the students learned during the SEA Lab program six months after the field trip. Teachers used several methods for incorporating topics learned during the program into their classroom curricula. Teachers also felt that the comic book and fish ID card presented useful information, reinforced content learned, was helpful in preparing students for the visit, and was a resource that they could use easily in the classroom. A few teachers were still using the comic book and fish ID card in the classroom six months later but many mentioned that the students took them home to help educate their families about fish contamination and safe fishing practices.

The short-term student survey shows that a high number of students retained the program's key messages. For the long-term survey, most students retained a high number of key messages but the following messages were a little unclear to students:

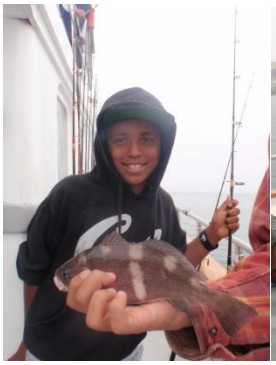
"Most fish are safe to eat in the Los Angeles area."

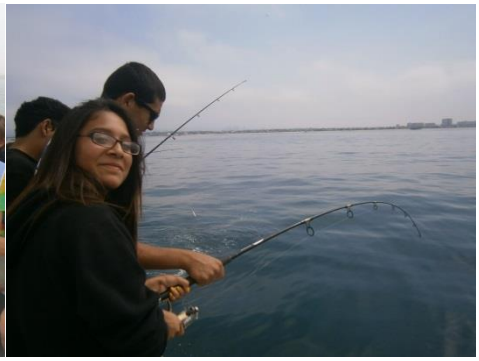
"Contaminants bioaccumulate up the food chain."

"Eating the fillet is the safest way to eat fish."

Students were taking many of the actions that related to the program's key messages six months after the visit. The two actions which were not being taken by most students related to eating only the fillet and eating only fish that are grilled. The questions on the long-term surveys relating to eating fish might be confusing for students because they are younger and are most likely not eating a lot of fish and not preparing or cooking the fish themselves. The long-term student survey data helps us to see which messages we could strengthen for future programs.

Marina Del Rey Anglers (MDRA)





MDRA was founded in 1975 as a fishing club. The board of directors is comprised of dedicated professionals and retirees. The club already successfully leads youth fishing trips, conducts major fishing tournaments and partners with the California Department of Fish and Wildlife, Hubbs Seaworld Research Institute and United Anglers of Southern California on a major White Sea Bass restoration project.

MDRA completed 27 boat fishing trips for 494 children within the Santa Monica Bay from July 2013 to August 2013. The children came from at-risk environments in the Los Angeles area and ranged from 10 - 16 years of age. During the fishing trips, MDRA taught the children and their counselors about local fish contamination and safe fishing practices and introduced the kids to the MSRP "What's the Catch" comic book. Copies of the "What's the Catch" comic book and the Fish Identification Card were distributed to the children to take home and share with their families. MDRA explained how to identify each of the fish that were caught and which ones are recommended for consumption and which ones should not be consumed. Fishing staff on the boat showed the kids and counselors how to properly fillet a fish for the safest possible consumption.

Youth counselor feedback (n=26, 100% response rate) on the MDRA boat fishing trips was extremely positive. Counselors felt that all of the kids enjoyed the fishing trip and activities they did that day and also were able to identify fish and which fish are safe to eat. They also felt that kids would use the fish identification card to help identify which fish are safe to eat (96%). They felt that the children learned about how DDT, PCB, and mercury impact people (100%), and that they understand they have a responsibility to be good stewards of the ocean and marine life (96%). Counselor feedback is shown below in Table 11.

Table 11—Counselor Surveys on MDRA Boat Fishing Activities (short-term)

	Strongly Agree and Agree
Our kids enjoyed the fishing trip and activities we did today	96%
The kids learned to identify fish and which fish are safe to eat	100%
The fish card helps kids and their families identify which fish are safe to eat	96%
The kids learned that a small number of locally caught fish species are not safe to eat	100%
I am sure that the kids will read the comic book and fish ID card and take them home to their families	100%
The kids learned about how chemicals, DDTs, PCBs, and mercury can harm wildlife and people	100%
The kids understand we have a responsibility to be good stewards and preserve our ocean's resources	96%
I plan to eat fish which are safe to eat and reinforce this to our kids and their families	100%

Number of youth counselor survey respondents is 26 (100%) post fishing trip from July 2013 to August 2013.

The youth that participated in the program were 55% boys and 45% girls. Youth feedback (n=200, 41% response rate) on MDRA boat fishing trips was also extremely positive. Youth really enjoyed the fishing trip and activities (90%) and retained many of MSRP's key messages. Results are shown in Table 12.

Table 12—Youth Surveys on MDRA Boat Fishing Activities (short-term)

	Agree
I enjoyed the fishing trip and activities we did today	90%
I plan to eat fish which are safe to eat*	80%
I learned how to identify fish and which fish are safe to eat*	80%
The fish card helps me identify fish that I learned about	80%
I learned that a few types of fish caught in Southern California are not safe to eat*	78%
I received a copy of the comic book, "What's the Catch?", and the Fish ID card	84%
I learned about how chemicals were spilled in the ocean and how they can harm wildlife and people*	84%
I plan to teach my family which fish are safe to eat and which ones are not good to eat *	67%
I took the comic book and Fish ID card home and shared it with my family	71%
I enjoyed the comic book, "What's the Catch?"	65%

Number of youth survey respondents is 206 (41%) post fishing trip from July 2013 to August 2013.

*Survey questions related to MSRP key messages.

Counselor Feedback about Boat Fishing Trip

Youth counselors clearly felt that their kids benefitted from the boat fishing experience and that it was a healthy way for them to enjoy themselves and experience the ocean.

How did your kids benefit from the fishing trip (selected counselor responses)?

- For some kids this was their first time going fishing. They are inner city kids from L.A.
- The kids were able to experience the ocean and marine life. They learned valuable information and applied skills they learned to catch fish.
- The kids learned which fish are safe to eat and how to properly prepare the fish.
- The kids learned many things on the fishing trip including sportsmanship, patience, conservation, friendship, cooperating, respect, humanity for animals, about the food chain, California ecology, about contaminants in the water, and how to care for the ocean.
- Many have never experienced being on a boat or fishing of any type. We will follow-up the program in the classroom.

What were the strongest aspects of the fishing program (selected counselor responses)?

- The staff and the volunteers were so helpful with the kids and made this an experience to last a lifetime for most.
- Learning about the hazardous chemicals that can affect the fish we eat, learning how to put the bait on the hook, and really knowing how to reel in fish.
- The importance of keeping our environment clean.
- The experience of catching a fish was so exciting for the kids since they have never done something like this before. Thank you!

Any suggestions for improvement (selected counselor responses)?

- We would like more time on the water.
- The staff are new on the trip as well so please address us personally if there are any issues (as opposed to something being stated over the loud speaker).
- Use kid-friendly terminology when educating the kids (i.e., what is bait).
- Thank you for your support. The kids look forward to this trip every year and share their experience with family and friends.

Summary Evaluation of Marina Del Rey Angler Youth Fishing Project

Counselor surveys from the MDRA Youth Fishing Project were very positive and expressed how valuable the trip was to the kids in terms of learning new skills, experiencing the ocean, and learning about fish contamination. The counselors also noted that they learned a lot about fish contamination and plan to share this information with family and friends. Some minor comments for improving the program include using more kid-friendly terminology and having better communication among the mentors and counselors about what is expected of the kids and them.

The youth surveys showed that kids retained the program's key messages and were willing to share information about fish contamination and safe fishing practices with friends and family. A high number of kids stated that they enjoyed the fishing trip and activities.

Cabrillo Beach Pier Fishing Program



The City of Los Angeles, Department of Recreation and Parks (City) operates and maintains the City's 16,000 acres of parkland, over 400 parks, 180 recreation centers, 59 pools, and two beaches. The City started a Cabrillo Beach Pier Fishing Program in 1988 instructing over 1,000 youth on how to fish. Due to budget constraints, the program did not receive funding and was cancelled for the summer of 2010. MSRP was able to provide funds to continue this program along with an educational component about safe fish consumption and the impact of the chemicals DDTs and PCBs to humans along the Los Angeles coastline.

From July to August 2013, the Cabrillo Beach Pier Fishing Program served 303 youth and 30 counselors from the greater Los Angeles area, ranging from 8 -16 years old. Youth from various recreation center day camps run by the Department of Recreation and Parks were transported to the Cabrillo Pier.

The fishing programs lasted 5.5 to 6 hours depending on when the kids arrived at the Cabrillo Pier. Prior to the fishing activity, staff handed out comic books and fish identification cards to all participants, explained the risks associated with consuming fish which contained high concentrations of DDTs and PCBs, demonstrated ways to identify contaminated fish, and discussed the group's fishing session at the Cabrillo Beach Pier, an area closest to the Palos Verdes Shelf contamination site. Youth received instructions on how to fish, including how to bait a hook, cast a fishing line, and catch and release techniques. Following the fishing activity groups went on an hour-long tour of the Cabrillo Marine Aquarium which is adjacent to the pier. Students also followed-up with some interactive games that reinforced messages about the food chain and protecting the ocean.

The youth that participated in the program were 58% boys and 42% girls. The majority of youth participating on the fishing trips enjoyed the trip (87%), learned that some fish caught in Southern California are not safe to eat (82%), and felt a sense of environmental stewardship and the need to protect/conserve marine life (90%). Youth feedback (n=303, 100% response rate) on pier fishing is in Table 13 below.

Table 13—Youth Surveys on Cabrillo Beach Pier Fishing Activities

	Responded Yes
I enjoyed the fishing trip and activities we did today	87%
I learned how to identify fish and which fish are safe to eat*	85%
The fish card helps me identify fish that I learned about	78%
I learned that a few types of fish caught in Southern California are not safe to eat*	82%
I plan to eat fish which are safe to eat*	84%
I enjoyed the tour at the Cabrillo Marine Aquarium	83%
I learned about how chemicals can harm wildlife and people from the comic book*	83%
I want to learn more about fishing and marine life in the ocean	77%
The ocean and marine life are important and we need to take care of them*	90%

Number of youth survey respondents is 303 (100%) post fishing trip from July 2013 to August 2013.
*Survey questions related to MSRP key messages.

Summary Evaluation of the Cabrillo Beach Pier Fishing Program

Student surveys were very positive with most of the kids enjoying the fishing trip and the Cabrillo Marine Aquarium tour. There was also a high retention rate for the program's key messages and kid's showed an interest in marine life and ocean stewardship. Providing the comic books and fish ID cards to kids before they started the pier program also seemed to help with the retention of key messages. We added an additional comments section to the survey this year but we only received three comments that did not impact the performance of the program. In the future, we might want to provide surveys to recreation center directors to get their feedback on the program as well.

Key Messages

MSRP developed a set of key and secondary messages for their program in 2013 which they encouraged their fishing mini-grant program recipients to incorporate into their programming. This was the first year that mini-grant recipients incorporated these messages. Through the fishing activity, the programs touched upon the key and secondary messages.

Key Messages

- Fishing is one of the most widely pursued outdoor activities in the world. The sport of fishing provides kids/families a direct connection to nature. (1)
- There are many fish that you can catch in southern California that are safe to eat. (2)
- A small number of fish that are commonly caught in southern California are not safe to eat because of contaminants. (3)

Secondary Messages

- DDT and PCB contaminants bioaccumulate up the food chain. (4)
- DDTs and PCBs, harmful chemicals to wildlife and humans, were dumped into the ocean for more than 30 years in southern California and are still in the environment today. (5)

- Eating only the filet and throwing away the insides of the fish is a safe way to eat. (6)
- Grilling a filet is the safest way to prepare fish to eat. (7)
- Look for signs on piers telling you which fish are not safe to eat. (8)
- All fish are an important part of the ocean ecosystem. If you do not keep a fish for the table, gently return it to the ocean. (9)
- You play an important role in preserving our ocean resources. Follow fishing rules and regulations to be good ocean stewards. (10)

Table 14—Implementation of Key Messages

		Students Responding Yes/Agree (%)		
Use of Key (1-3) and Secondary Messages (4-10)	Relates to Message	SEA Lab	MDRA	City of Los Angeles (City)
Enjoyed the fishing trip	1	97	96	87
Plan to eat fish which are safe to eat	2	97	80	84
Learned how to identify which fish are safe to eat		94	80	85
A few fish are not safe to eat	3	89	78	82
Contaminants bioaccumulate up the food chain	4	79	84	λ
Chemicals can harm wildlife & people	5	90	84	83
Grilling and eating fillet safest way to eat fish	6, 7	λ	λ	λ
Look for signs telling which fish are not safe to eat	8	94	--	λ
Return fish to ocean if you do not plan to eat them	9	86	λ	λ
Want to learn more about fishing & marine life	10	88	λ	77
Ocean & marine life are important, need to take care of them		97	λ	90

Students responded yes to SEA Lab and Cabrillo Beach Pier surveys and agree on MDR Anglers surveys. A lamda symbol indicates concepts were taught but data were not collected. A double dash indicates concepts were not taught.

Table 14 indicates the degree to which key MSRP messages were incorporated into the fishing mini-grant programs. Youth survey questions pertaining to particular key messages were included in Table 14 for each program. Three of the key messages (2,3,5) were incorporated by all programs and had at least a 78% or higher rate of retention from all of the programs. Secondary messages (4-10) were emphasized differently among the various programs and with a 77% or higher retention for all of the programs. The surveys were administered to youth immediately after the fishing activity for the City and shortly after for SEA Lab and MDRA. We also learned about the long-term impacts of these messages to students that completed the SEA Lab program (Tables 7-8). More than half of the students retained 7 of 10 key messages and were taking five of the seven actions related to these messages six months after they completed the Fun Fishing Program.

Comparison to Previous Program Years

In 2012, MSRP developed key and secondary messages and incorporated the use of post-program surveys across all fishing outreach programs. We were able to collect some valuable data for each program and we are using the feedback we received to improve our fishing outreach efforts. This year we continued the use of the post-program surveys and a quick comparison of the results for numbers of participants and key messages during both years is shown in Table 15. Only key messages where data were collected for all three programs is included in the table. In all areas and across programs, survey results from 2013 were either similar to 2012 or improved slightly (10% improvement or less). We will try to better align survey questions across programs and to all key messages in 2014.

Table 15—Survey Data for 2012 and 2013

Participants and Use of Messages		**2012**	**2013**
# Participants		1296	1454
Use of Key (1-3) and Secondary Messages (4-10)	Relates to Message	Avg Across All Programs-Students Responding Yes/Agree (%)	
Enjoyed the fishing trip and activities	1	87	93
Learned how to identify which fish are safe to eat	2	73	86
Learned a few fish are not safe to eat	3	73	83
Chemicals can harm wildlife & people	5	79	86
Ocean stewardship	10	93	93